

The invention relates to mechanical engineering and can be used primarily in the production, use and repair of bearings. In the roller bearing, comprising an outer race and an inner race with rollers situated therebetween, the working surfaces of the edges of the outer and inner races are embodied as a portion of the surface of a torus in such a way that they transition smoothly into the surfaces of recesses provided in the cylindrical working surfaces of the races, wherein the distance between the planes of symmetry of the spherical surface of the face of a roller and the surfaces of the torus for the outer and inner races is related to the radii of said surfaces and the distance of the points of contact thereof from the cylindrical working surfaces of the races by the relationship:  $I = (d/2 - h)(R/R_1 - 1)$ , where  $I$  is the distance between the planes of symmetry of the spherical surface of the face of a roller and the surfaces of the torus;  $d$  is the diameter of a roller;  $R$  is the radius of the surface of the torus;  $R_1$  is the radius of the spherical surface of the face of a roller;  $h$  is the distance of the point of contact of the working surfaces of the edges of the races and the faces of the rollers from the cylindrical working surface of the races. Furthermore, in the roller bearing, the relationship of the size of the radius  $R$  of the surface of the torus to the size of the radius  $R_1$  of the spherical surface of the face of the rollers is selected as preferably equal to  $R/R_1 = 1.1 \dots 1.25$ . This design provides a significant increase in the reliability and durability (service life) of the roller bearing.